Declaration

For

Liquidnet

Patent Application

United States Patent And Trademark Office

Application No.	:	09/834,171
Title	:	ELECTRONIC SECURITIES MARKETPLACE HAVING INTEGRATION WITH ORDER MANAGEMENT SYSTEMS
Applicant(s)	:	Seth I. Merrin, et al.
Filed	:	April 12, 2001
TC/AU	:	3624
Examiner	:	Kyle, Charles R.
Docket No.	:	363779/0002

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

DECLARATION OF JOHN COULTER

I, John Coulter, declare the following under penalty of perjury:

1. I currently hold the position of Vice President, Director of Marketing & Business Development with VhaYu Technologies, Inc. As set forth in greater detail in my attached resume, I have worked in the financial technology industry for approximately 15 years, and as such, I am familiar with the securities industry as it existed in October 2000 through the present. I am not an employee of Liquidnet, Inc. ("Liquidnet") and I am not receiving any compensation for providing this Declaration.

2. Under confidentiality obligations, I have reviewed U.S. Patent Application Serial No. 09/834,171 (the "Application"), including the currently pending independent claims 1, 9, 23,

31, 38 and 42 – 45 (the "Claims"), the Office Action mailed August 10, 2004 issued in the Application (the "Office Action"), U.S. Patent No. 6,505,175 to Silverman et al. ("Silverman") and U.S. Published Patent Application No. US2002/0007335 to Millard et al. ("Millard"). I understand from the Office Action that the Examiner believes the invention described by the pending claims represents an obvious improvement over the state of the art, as evidenced by Silverman, Millard and the other cited references.

3. I have participated in a demonstration of and am familiar with the system, including the electronic marketplace, provided by Liquidnet, and I understand its operation. I believe the system provided by Liquidnet is covered by at least the Claims. In this regard, the Liquidnet electronic marketplace provides liquidity in the form of non-binding indications of interests by reading records in trading firms' order management systems (OMSs), deriving non-binding indications of interest from the records in the OMSs and automatically providing the non-binding indications to an electronic marketplace ("ETM"). I know of no system that was in existence prior to April 2001, which I am advised is when the Application was filed, that automatically provided non-binding indications to an ETM where the indications were derived from OMS database records reflecting orders.

4. The term "order management system" (OMS) has, and has had since October 2000, a well known meaning in the securities industry. An OMS is a software product used by trading firms, into which traders enter the details of orders for securities. Traders also use OMSs to manage and place orders on exchanges and ECNs. When placing an order, the trader must manually initiate placing the order from the OMS; I know of no OMS in which orders are placed automatically, without manual intervention.

5. I am familiar with electronic communications networks or ECNs. The term ECN has, and has had since October 2000, a well-known meaning in the securities industry. An ECN is an order matching system that receives and matches orders from multiple trading firms. An ECN is an aggregation of orders from multiple trading firms, whereas an OMS is internal to a single trading firm, for recording orders of that trading firm. A trading firm might use an OMS to initiate placing orders on an ECN. Therefore, an ECN and an OMS provide different functions and are distinct systems. No one skilled in the technical field of securities or securities trading systems in October 2000, including myself, would equate an ECN and an OMS.

6. The Instinet system is an example of an ECN. Instinet is an order matching system for matching firm orders, i.e., bids and asks, received from multiple trading firms. When the bids and asks for a particular security are equal, the Instinet system matches them and executes the transaction. No one skilled in the technical art of securities or securities trading systems in October 2000, including myself, would equate Instinet and an OMS. Instinet is not an OMS.

7. I have read and understand Millard and believe that it fails to describe the features of the Claims, including the combination of reading records in an OMS database, deriving non-binding indications of interest to trade securities based on the OMS database records and automatically providing the non-binding indications to an ETM. Millard does not describe an OMS and, more particularly, does not describe non-binding indications to trade securities derived from records in an OMS database reflecting orders for securities. Millard also does not describe automatically providing indications, or even orders, to a marketplace. In fact, when I read Millard, it suggests to me to do the opposite of the claimed features of reading of OMS

records and deriving non-binding indications from the OMS records because Millard only describes manually entering the non-binding indications.

8. I have read and understand Silverman and similarly believe that it fails to describe the features of the Claims, including the combination of reading records in an OMS database, deriving non-binding indications of interest to trade securities based on the OMS database records and automatically providing the non-binding indications to an ETM. Silverman does not describe non-binding indications to trade securities derived from records in an OMS database reflecting orders for securities. Silverman also does not describe automatically providing indications, or even orders, to a marketplace, as Silverman requires a trader to manually initiate an order. See Silverman, Col 4, lines 12-14 ("a trader, customer or other person with access to the Order Management System 130 initiates a trade by entering an order 210").

9. Looking at Millard and Silverman together, nothing suggests to me deriving non-binding indications from records reflecting orders in an OMS database. Neither Millard nor Silverman suggest modifying existing OMS records to derive non-binding indications and to automatically provide them to an ETM.

10. I have read the Examiner's arguments in the Office Action of August 10, 2004 that one of ordinary skill in the art could combine Silverman and Millard to arrive at the invention set forth in the claims, and I disagree. First, neither Silverman nor Millard even hint at deriving non-binding indications from records reflecting orders in an OMS database. Second, combining the system of Silverman with that of Millard as described by the Examiner would result in a system having no utility. Most specifically, the proposed combination would result in a system incapable of effectuating trades, as there is no mechanism for the trader to provide the necessary, affirmative action of accepting or rejecting an indication on the exchange floor.

Third, neither Silverman nor Millard provides a mechanism for traders to distinguish orders from indications or to identify to the brokers on the trading floor which parameters of the indication the trader would be willing to negotiate and to identify the trader's response in the negotiation. That one skilled in the art would not combine Silverman and Millard is supported by the fact that existing exchanges, such as the New York Stock Exchange, deal only with binding orders, not non-binding indications. This fact is not the basis for my opinion that one skilled in the art would not modify Silverman based on Millard as argued by the Examiner, but rather is used as support for my conclusion, as exchange trading floors and non-binding indications have existed separately for many years.

11. Several publicly available articles note the commercial success of the Liquidnet system. As described in greater detail below, the Liquidnet system, which is covered by the Claims, has achieved notable success due to the claimed features. For example, Exhibit 1, "Upstart networks gain ground – ALTERNATIVE SYSTEMS – New technology for global trading is winning clients," Financial Times, May 26, 2004, describes Liquidnet as having seen "spectacular growth," including 185 member firms, which collectively manage about $6 trillion in equity assets.

12. The level of commercial success achieved by Liquidnet is even more impressive given the frequency with which alternative trading systems fail. As noted in Exhibit 2 "A Country Club: Liquidnet to offer direct trading: New platform will be first granting large institutions anonymity in U.S. stock, ADR trades with each other," Pensions & Investments, Vol. 28, No. 25, December 11, 2000, notes that "nine out of every ten products designed for the institutional investing community fail."

13. I have read the Declaration of Eric LeGoff, the Chief Operating Officer of Liquidnet regarding the commercial success of the Liquidnet system.

14. I am familiar with the Liquidnet system, as well as other alternative trading systems, including the POSIT System, E-Crossnet, and Harborside+, and I believe that the commercial success of the Liquidnet system, both as described in the Exhibits hereto and as set forth in the Declaration of Mr. LeGoff is directly attributable to the features set forth in the Claims. In particular, the Liquidnet system reads records in the members' OMS databases and derives non-binding indications from the records in the OMS databases and automatically provides them to the ETM. The liquidity of the Liquidnet system is a direct result of these claim features, and it is this liquidity that makes the Liquidnet system successful. Furthermore, because the system interfaces with the members' OMSs and automatically provides the non-binding indications to the ETM, the Liquidnet system is easily and seamlessly integrated into the trading process, as liquidity is provided with no manual trader input. Such ease of use is also the reason the Liquidnet system is successful.

15. As provided in Exhibit 1, "other alternative trading systems, such as E-Crossnet, use a different model, which requires the trader to input orders into the E-Crossnet system," which I read as the author's characterizing of these features as providing Liquidnet with a distinct commercial advantage. I agree with this characterization. Furthermore, the same article (Exhibit 1) identifies a distinguishing feature of the Liquidnet system as "link[ing] into fund mangers' order management systems to see what trades they want to make and then going out into the [ETM] to find suitable matches." This linking to the fund managers' order management systems is directly reflected in the Claims, as the non-binding indications are derived from records reflecting orders read from the order management systems. The integration of the

Liquidnet system with the member firms' order management systems is further highlighted by "Nigel Solkhon, Global Segment Manager, Asset Management, at IBM, who points to the Liquidnet system as sitting 'like a heartbeat behind the order management system' to achieve an automated trading process requiring minimum effort from traders". I interpret this as referring to the claimed features of deriving non-binding indications of interest from records read in an OMS database and automatically providing the non-binding indications to an ETM.

16. Similarly, Exhibit 2 quotes James Mangan, Director Head Equity Trader at Citicorp Global Asset Management as referring to Liquidnet as "very user friendly," further noting that "I can't see why it wouldn't do well." Again, the Liquidnet system is "user friendly" because it derives non-binding indications from existing records in OMS databases and, without manual trader intervention, it automatically provides the non-binding indications to an ETM.

17. Still other articles further attribute the appeal and success of the Liquidnet system to the claimed features. For example, Exhibit 3, "Leveraging the Napster Model: Peer-to-Peer Computing Penetrates the Buy Side", TowerGroup, November 2000, emphasizes (at page 9) that "Liquidnet has eliminated the task of re-keying orders into another system for possible execution." Elimination of the task of re-keying orders is a direct result from reading records in an OMS database, deriving the non-binding indications from the OMS records, and automatically providing them to the ETM. Even more emphatically, the article continues:

> Lastly, Liquidnet has developed a system that <u>interfaces directly to a firm's order management system</u>, eliminating the need for extra keystrokes on the part of the buy-side trader, <u>a characteristic whose importance cannot be overstated</u>. Page 10.

I agree with this characterization: The importance, and indeed significant reason for Liquidnet's success, is that its system interfaces with its member firms' order management systems, by

reading records in the OMSs and deriving non-binding indications from those records. There is no separate manual order entry, as these non-binding indications are automatically provided to the ETM.

18. Still another article emphasizes the importance of the claimed features. Exhibit 4, "Crossing Networks – Has their time come," Banking Technology, May 31, 2002, also emphasizes Liquidnet's interaction with its members' order management systems.

> Liquidnet differs from all its counterparts in that traders do not have to enter orders themselves. Its software searches participants' order management systems (OMS) and automatically alerts traders to natural matches. Leo Smith, head of equity trading at Putnam Investment Management, who has been using Liquidnet since its U.S. launch in April 2001 and is on the firm's board of advisors says, "Liquidnet went out into the marketplace and found out exactly what people want. Traders are very busy, and if something is not easy to use, they won't bother." (Emphasis added).

Traders do not enter the non-binding indications because they are derived from the OMS records.

19. Exhibit 4 further notes that other features of the system likely do not add to the commercial success.

> 'With crossing networks [such as Liquidnet], the key is liquidity. Everything else is secondary. If they don't amass liquidity, they won't survive no matter how many bells and whistles they have,' says Rob Hegarty, Senior Analyst at Towergroup.

I agree with this statement: the key to the success to a crossing network or other alternative trading system, such as the Liquidnet system, is liquidity in the marketplace, not other features or "bells and whistles." In this regard Liquidnet achieves its liquidity by interfacing with its member firms' order management systems, reading the records reflecting orders in the OMS databases, deriving non-binding indications based on such records, and then providing these non-binding indications to the ETM without manual intervention.

20. I am familiar with the trading system offered by Harborside+ and believe that the success of the Liquidnet system caused Harborside+, a competitor of Liquidnet, to copy the Liquidnet system and, more particularly, to copy the claimed features of reading records reflecting orders in OMS databases and deriving non-binding indications of interest, which are provided to a marketplace. This copying is evidenced by a comparison of two articles: Exhibit 5, "New Block Trading System Combines Automation with the Human Touch, Wall Street and Technology, September 4, 2002, and Exhibit 6, "Buy-Side Firms Tapping Liquidity Via OMS Interfaces with Harborside+," December 16, 2002 Harborside+ press release. As described in the earlier article, Exhibit 5, Harborside+ clients "enter[ed] indications of interest [IOIs] to buy or sell a stock" (third paragraph) and "traders use[d] the system by entering IOIs." (seventh paragraph). In the original system offered by Harborside+, traders manually entered the non-binding indications of interest into the system.

21. However, as evidenced by the later article, Exhibit 6, Harborside+ redesigned its system after it had already developed its system, adding an interface to traders' OMSs to add increased liquidity.

> Harborside announced [on December 16, 2002] that traders are gaining access to new sources of liquidity, by leveraging interfaces between its large block trading service and their respective order management systems (OMS). First paragraph.

The Harborside+ interface "seamlessly allows Harborside+ to receive IOIs from a traders' [sic] OMS." Third paragraph.

22. I believe that Liquidnet's success stemming from the ease of use and increased liquidity resulting from integration with traders' OMSs likely caused Harborside+ to copy these features. I also believe that Harborside+ likely copied the Liquidnet system because Liquidnet

was a well-known competitor to Harborside+ in providing a market for large block trades. As acknowledged in the industry around the time Harborside+ copied the Liquidnet system, Liquidnet was the only main competitor to Harborside+. Exhibit 7, "Harborside+ Rolls Out Block Trading Platform," eFinancialNews, September 23, 2002 (last paragraph). I also find support for copying by Harborside+ in the fact that Harborside+'s customers deemed the claimed features important. For example, one Harborside+ customer described the interface with the OMS for reading OMS records and deriving non-binding indications of interest as "innovative, seamless to clients and easy to use which is important to traders" (Exhibit 6, eighth paragraph), while another customer noted that "having Harborside+ run off [its] OMS makes the application easy to use." Exhibit 6, seventh paragraph.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application for any patent issued therefrom.

By: [signature]

Name: JOHN J COULTER

Title: VP MARKETING, VHAYU TECHNOLOGIES

Date: 12/2/04

John J. Coulter, VP - Director of Marketing & Business Development, VhaYu Technologies, Inc.

Mr. Coulter is an industry veteran who has worked for financial technology companies which provide solutions that strive to eliminate the many complexities thousands of institutions looking to trade electronically are faced with. Most recently, John was President and COO of Javelin Technologies in New York, where he successfully turned the company profitable from 2001 to 2003 after being acquired by Nyfix, Inc. John was also a member of Ease Technologies where he was a founder of the group that created the TRIAD indication of interest management system from 1995 to 1997. John has also held various product management and sales management positions at ADP, Bridge, VIE Systems and Reuters over the last 14 years. Mr. Coulter has been at the forefront of promoting electronic trading via FIX since its inception and has written numerous articles on the benefits of automation. John has BA degrees in Journalism and English Literature from Fairfield University.

Upstart networks gain ground - ALTERNATIVE SYSTEMS - New technology for global trading is winning clients, writes Nick Huber.

By NICK HUBER
2,002 words
26 May 2004
Financial Times
Surveys JIT1
Page 5
English

The last few years have been bruising for the worlds' stock exchanges. Economic downturn and the threat of terrorism have taken a heavy toll on profits and market confidence, but a greater threat could lie in new technology and upstart rivals, experts believe.

Incumbent stock exchanges face growing competition from alternative trading systems and "crossing networks". These fast-growing companies, such as E-Crossnet and Liquidnet, bypass stock exchanges by automatically matching and selling institutions' large orders using peer-to-peer and instant messaging-style technology. Fund managers simply install the software on their desktop, dispensing with the need for a special terminal, and trade anonymously among themselves.

Research from Accenture predicts that new technology will play a key role in sorting out the winners from the losers in the fight for market share between incumbent stock exchanges and their new rivals.

"Potentially disruptive technologies allowing intelligent order routing and direct trading between institutions are increasing in importance and becoming ever more prevalent," said the research into the future of the London and European Exchanges, which was published last year. "The emergence of electronic crossing networks and other types of alternative trading systems is important and represents a significant threat to incumbent exchanges. In the future it is thought that liquidity will be more fragmented with the different pools being linked by alternative trading systems."

The alternative trading systems have seen spectacular growth since their launch three to four years ago. Liquidnet, a US and European-based business, was launched in 2001, and now has 185 firms, which manage around Dollars 6,000bn (Euros 5,000bn) in equity assets, using its trading system,

Firms using the Liquidnet system include Barclays Global Investors, Deutsche Asset Management and Schroder Investment Management.

Other alternative trading systems, such as E-Crossnet, use a different model, which requires the trader to input orders into the E-Crossnet system to be matched during set times of the day.

Competition to stock exchange technology is also emerging from well-established firms such as State Street, a US bank founded in 1792, which allows financial firms to trade directly over an online network.

The technology used by alternative trading systems is breaking the mould of traditional trading systems.

Liquidnet, for instance, is an internet-based trading system that uses peer-to-peer style technology to match prospective buyers with sellers in real-time. The trading system, which was developed in-house, links into fund managers' order management systems to see what trades they want to make and then goes out into the market to find suitable matches.

Liquidnet uses messaging software from Tibco, a supplier of integration software, while its back-end systems run on large servers from Sun Microsystems.

"Our model (technology) is our value proposition," says Seth Merrin, founder and CEO of Liquidnet, who compares the Liquidnet system to the online marketplace eBay. "We have hundreds of buyers and sellers who deal among themselves (bypassing exchanges and brokers) - it's a very much do-it-yourself system."

Despite the relative immaturity of alternative trading systems Mr Merrin claims that its internet-based service is less vulnerable to crashes than traditional trading systems.

The emergence of alternative trading systems is the latest milestone in the evolution of trading technology. Up until the early to mid-1990s most fund managers would trade using a combination of phone, fax and electronic terminals, such as Bloomberg and Reuters. The manual processes were prone to errors and misunderstandings but things became more streamlined with the introduction of the Financial Information Exchange (FIX) Protocol - a messaging standard developed specifically for the real-time electronic exchange of securities transactions.

The next step forward came with order management systems, a desktop application to help brokers to receive, track and execute orders. Then, around four years ago, alternative trading systems started to appear.

Nigel Solkhon, global segment manager, asset management, at IBM agrees that peer-to-peer type technology is well-suited to the needs of traders because automating the trading process requires the minimum of effort from traders.

"Liquidnet's peer-to-peer technology sits like a heartbeat behind the order management system matching buyers and sellers," he says. "The (Liquidnet) business model fits very nicely with traders who are paid stacks of money to be smart cookies and know when to come in and out of the market at the right time."

But despite the rapid expansion of alternative trading systems, some experts believe that the size, reputation and resilient nature of the incumbent exchanges will stop the upstart systems from poaching large chunks of their business.

"There are reasons to believe that stock exchanges are under threat from new technology and upstart rivals," says Daniel Cohen of PA Consulting Group. "(However) The stock exchanges can provide the most liquidity (the ease with which financial assets can be converted to cash) and the advantages to traders of carrying out their activities in the biggest pool of liquidity typically outweigh any advantages provided by new technology, even despite lower execution costs."

Despite tensions between incumbent stock exchanges and rivals offering alternative systems both, according to IBM's Mr Solkhon, are likely to use similar technologies in the future.

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Although the Accenture research focused on Europe the new kids on the trading block have global aspirations.

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see what trades they want to make and then goes out into the market to find suitable matches. When a match is found an alert pops up on the trader's desktop, and he or she can then decide whether or not to proceed with the deal.

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On the New York Stock Exchange, for instance, only 7 per cent of total trades are executed automatically, on its electronic trading service, Direct+. However, the US exchange is making the servicer available to a wider range of investors, and also equips brokers on the trading floor with handheld wireless devices (Pico Cells) to communicate.

Despite tensions between incumbent stock exchanges and rivals offering alternative trading systems both, according to IBM's Mr Solkhon, are likely to use similar technologies in the future.

These include an increasing reliance on open source software - widely viewed as a cheap and scaleable alternative operating system to Unix or Windows NT - and algorithmic trading systems (powerful software that helps clients develop trading strategies and their transactions).

However, for financial firms and traders to reap the full benefits of trading technology stock exchanges and alternative trading systems will need to work more closely together in future, according to some industry watchers.

"For the start-up (alternative trading exchanges) to be successful, they need to find subtle technological and organisational solutions that enable them to provide the benefits of the new systems while not cutting off customers from the existing liquidity pools," says Mr Cohen at PA Consulting. "Curiously, these solutions will often involve entering into a symbiotic relationship with the exchanges they are supposed to be destroying."

A `COUNTRY CLUB': Liquidnet to offer direct trading : New platform will be first granting large institutions anonymity in U.S. stock, ADR trades with each other

Mike Kennedy
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English

New York -- Liquidnet soon will offer the first alternative direct trading platform for large institutional investors to trade large blocks of domestic equities and American depository receipts with each other in an exclusive and anonymous format.

The firm, formed in January, will go live with its new platform in the first quarter of 2001. It is the idea of Seth Merrin, chief executive officer, who said it had been clear for some time that such a system - which, unlike an electronic communication network or cross-trading network, provides anonymous trading - was needed. Research by Liquidnet, New York, indicates the order management system firm's client base typically trades 250,000 shares or more through a broker at one time. Mr. Merrin claims investors pay high transaction costs and damage liquidity by exposing themselves to the open market.

The firm would not make public its listing of 170 members, but any individual client must have at least $30 billion in assets. Alfred Eskandar, Liquidnet director of marketing, referred to the company as a "country club."

Liquidnet's five-member board of directors includes Michael Price, chairman of Franklin Mutual Series, Short Hills, N.J., and Lawrence Zicklin, chairman at Neuberger Berman LLC, New York

Anonymous liquidity

Liquidnet, which will act as a clearing broker, will charge commissions of 2 cents a share. According to the Plexus Group, a research firm in Los Angeles, the average commission cost currently is close to 5 cents per share, and the average market impact cost is near 9 cents. Other than commissions, Liquidnet traders will face few additional costs. The company plans to significantly reduce market impact costs - to 1 cent per share, by Mr. Eskander's estimate - since shares won't be traded in the open market. Liquidnet clients will not pay annual membership or license agreement fees. Also, no minimum will be set on the amount of shares that must be traded at one time

"It's a great way for liquidity to be found anonymously," said David Hall, president of Plexus.

Mr. Hall has seen a demo of the Liquidnet service and found it "potentially very useful." Electronic communications and cross-trading networks are not capable of the anonymity, he said.

Liquidnet and Plexus agree that trading huge quantities of equities on the open market can be very costly. When investors see hundreds of thousands of shares being traded, they may react in a way that drives down the stock's value. Liquidnet trading will occur in a closed environment where outsiders will not be aware of trades.

Mr. Hall cautioned, however, that nothing inherent in the platform combats delay costs; in fact, Liquidnet users, operating in a smaller, closed system, might not be able to sell stocks as quickly as they would be able to on the open market. The new platform will "only be successful if people make it a success," added Mr. Hall. He estimated nine out of every 10 products designed for the institutional investing community fail.

Plexus estimated the average current costs for missed trades and delays is 7 and 24 cents per share, respectively. Mr. Eskandar contends Liquidnet clients will see reductions in both areas. "The system (reduces) friction" with its peer-to-peer network, he said. He said 53% of the equities market is institutional; and retail clients seldom trade as many as 250,000 shares at once.

The system is very "user friendly," said James Mangan, director, head equity trader at Citicorp Global Asset Management, Stamford, Conn.; he added, "I can't see why it wouldn't do well."

OptiMark comparison

Mr. Mangan is a member of Liquidnet's advisory board. He had been on the advisory committee for OptiMark Inc., which had offered an alternative trading system that allowed for intermarket (institutional) trading.

Nicola Nichol, an Optimark spokeswoman, said, "[We were] not able to attract the liquidity we needed." The system was shut down in September. The Jersey City, N.J. firm continues to provide matching and aggregation services.

The OptiMark service was similar to Liquidnet, but it required clients to create profiles and it executed trades automatically, said Mr. Mangan, who said his firm's only trade on OptiMark was an error. Mr. Mangan said he is a lot more optimistic about Liquidnet because it will not be as cumbersome as OptiMark was, and it will not make automatic trades.

Said Mr. Hall: "The institutional investing community didn't want to be a price-maker," which is something he feels OptiMark required their clients to be.

When Liquidnet began marketing its service this past spring, the company planned to launch in 2001 with a capacity of 100 clients. The first 100 firms are still expected to go live at that time. The remaining 70 clients are expected to be added soon after.

Mr. Merrin has some experience in the buy-side trading area. In 1985, he created the Merrin Financial Trading Platform, a buy-side order management system that was widely used by institutional investors by the time Merrin Financial was sold to Automatic Data Processing Inc. in 1996; "they made an offer that was too good to refuse," he said. In late 1999, he left the firm, which subsequently was sold to McGregor Group.

Liquidnet has established technology partnerships with Advent Software Inc., Eze Castle Software and McGregor.

Photo Caption: Liquidnet's Seth Merrin said it had been clear for some time that the system was needed. * Liquidnet's Alfred Eskander estimates the platform will reduce market impact costs to 1 cent per share. Photo Credit: Doug Goodman

TowerGroup

The Power of Knowledge

Leveraging the Napster Model: Peer-to-peer Computing Penetrates the Buy Side

000:00
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Highlights

- Not since the introduction of the Netscape browser has the Internet been filled with as much promise as the emerging peer-to-peer movement. In the same way that Netscape made information on the Internet available and accessible to the masses, peer-to-peer computing will allow forward thinking firms to truly exploit the Internet, while enabling their customers to take advantage of information and computing power like never before.
- Two new peer-to-peer systems are poised to revolutionize the investment management industry: LiquidNet and WorldStreet. LiquidNet is aiming to build the largest liquidity pool exclusively for buy-side traders. By combining order matching and negotiation software with direct interfaces to some leading order management systems, LiquidNet is poised to redefine buy-side trader workflow and potentially the market for block orders.
- Likewise, by combining a new concept dubbed "package routing" with more traditional CRM capabilities, WorldStreet is taking a run at becoming the "control panel" for the buy-side, both on the portfolio manager and analyst desk as well as the trading desk.
- One of the most significant concerns for firms using and deploying peer-to-peer technology surrounds security. P2P technology allows for more open communication between two previously unconnected desktop machines. While this openness presents no serious concern to the average music file-sharing consumer, it raises some significant red flags for the financial community.
- While B2B exchanges have captured the attention of entrepreneurs in almost every commoditized industry, peer-to-peer models threaten to usurp these exchanges with its more open, community-owned model.

TowerGroup Research Notes are available to subscribers on the Internet at www.towergroup.com.

Vision

Peer-to-peer computing is positioned to become the most widely used, Internet-enabling technology of the next several years. While the World Wide Web allowed computer users to browse the Internet, peer-to-peer holds the promise of intelligently connecting every desktop computer with one another, allowing for the sharing of information, data, and computer processing power to build and strengthen all types of relationships.

By establishing connections among parties with similar interests and needs, the peer-to-peer architecture will evolve the typical Internet experience from a disconnected search for information that is likely resident on unconnected computers into one of participation in a community of users with similar needs and

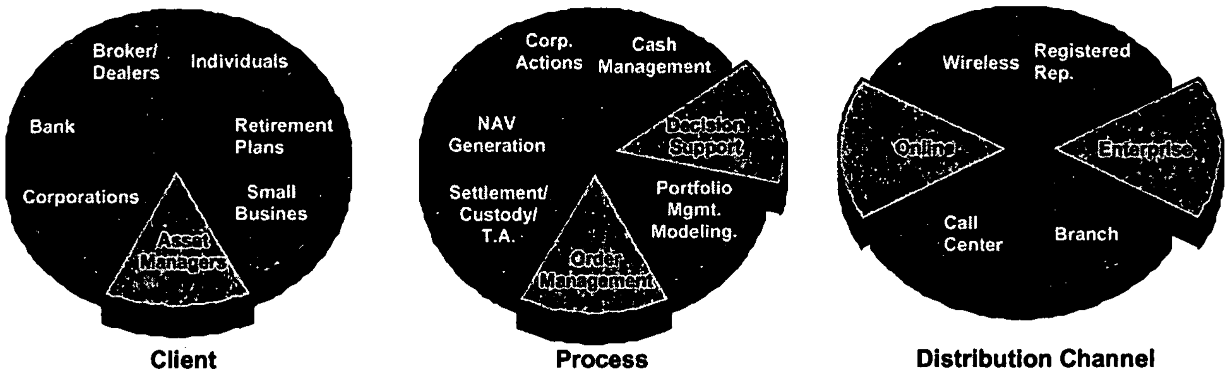
The introduction of two new peer-to-peer systems into the buy-side community will help hasten the advancement of peer-to-peer technologies into the financial community. LiquidNet is poised to revolutionize the buy-side trading community and WorldStreet has begun to change the buy-side analyst/portfolio manager community. By embedding these systems into the current investing workflow, portfolio managers, analysts, and traders will achieve efficiencies and access to information not previously available. P2P technology provides access to information without having to know how to look for it; it automates the search process while the more structured models ensure that the user is dealing with only the appropriate, authorized parties.

In perhaps its most formidable challenge, p2p could possibly surpass the B2B exchange as the preferred method of transacting for commodities. While the B2B exchange brings together buyers and sellers of commodities in a single, online marketplace, employing peer-to-peer technology in these same marketplaces would make the process simpler (embedded into the workflow) and potentially more efficient (i.e. the participants would be linked directly to parties likely to transact in the same products.

Wall street firms will also be very major drivers of p2p technology as the move to b2b markets and exchanges in many cases implants the b2b market in between the investment manager and the broker / dealer. In the case of a b2b exchange, the exchange disintermediates the broker completely. Peer to peer communication will enable the broker to re-connect directly with the investment manager without going through an intermediary.

While the displacement of the B2B exchange may seem unlikely at this juncture in the Internet's life, in just a few short years, the World Wide Web will fade, having been replaced with intelligent agents that connect to one another through peer-to-peer technology, allowing disparate computer users worldwide to communicate on the basis of preference, not by chance.

Taxonomy



Business Drivers

- **Information overload.** Peer-to-peer computing can provide profiling and filtering capabilities to help traders, portfolio managers, and analysts receive only the information relevant to them from the parties with whom they wish to conduct business.
- **Popularization of Napster.** While peer-to-peer technology has been in existence for many years, the Napster music file-sharing program brought the power of P2P to the masses.
- **Explosion of available bandwidth and desktop processing power.** The convergence of exploding available bandwidth and the exponential increase of desktop processing power has levied a heightened capability to store, process and move data across the Internet at unprecedented rates.
- **The "databasing" of the universe.** As more information is stored digitally and indexed in databases, it becomes easier to select only the information desired. Peer-to-peer computing is able to more efficiently exploit these vast amounts of organized data.

Implications

- Investment managers (and others) will adopt peer-to-peer technologies in order to reduce the amount of information overload, make more efficient use of available data, and communicate more effectively with peers ad counterparts.
- New opportunities will be created in areas of the industry that suffer from problems like information overload and poor communication. The filtering capabilities appeal to most investment managers to help streamline the decision-making and trading processes.

Actions

- Investment managers need to understand and embrace peer-to-peer technology in order to identify potential uses for it. While vendors will be touting their P2P capabilities as the concept gains even

more momentum, firms will need to determine whether the solution being offered truly achieves the benefits of peer-to-peer.

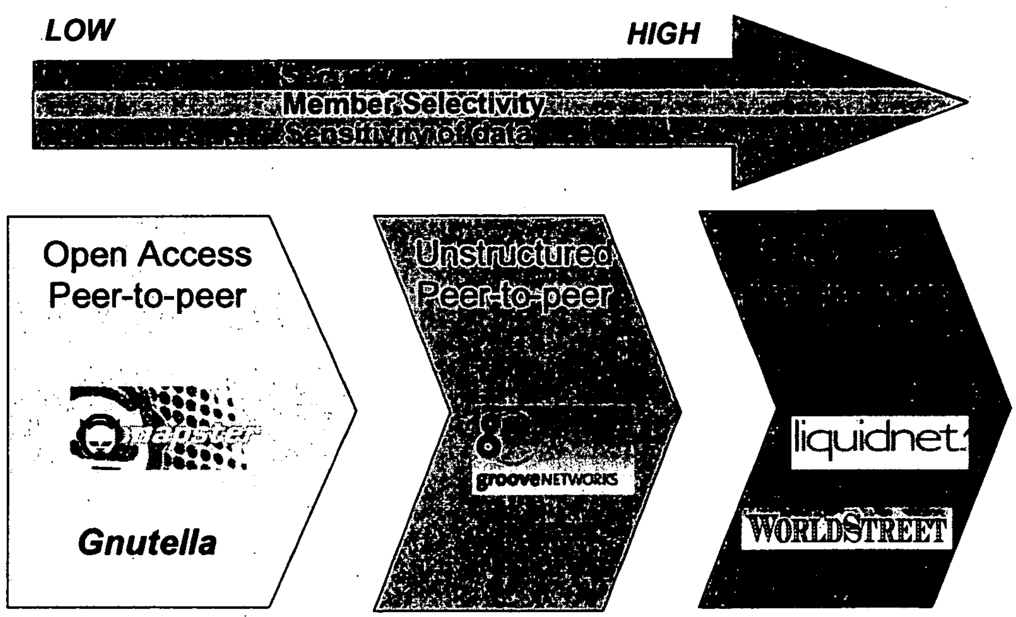
- Software vendors should determine whether to build and launch a P2P model of their current software offerings. In nearly all cases, the P2P model will need to be built from scratch, as most current software models differ too widely from a P2P architecture. Cost/benefit analysis must be part of the analysis before deciding.

Introduction

Not since the introduction of the Netscape browser has the Internet been filled with as much promise as the emerging peer-to-peer movement. In the same way that Netscape made information on the Internet available and accessible to the masses, peer-to-peer computing will allow forward thinking firms to truly exploit the Internet, while enabling their customers to take advantage of information and computing power like never before. Peer-to-peer computing is destined to be the next iteration of Internet-enabling technologies.

Simply defined, peer-to-peer computing is a technology that allows one desktop computer (i.e. peer) to share files, data, processing power, programs, and all other contents with another desktop computer. This technology – also known as P2P – describes a capability that has been in existence for many years, but has been popularized by the widespread adoption of one specific implementation, namely music file sharing, and one particular software application, namely Napster. One of the earliest peer-to-peer implementations in trading is the Financial Information eXchange (FIX) protocol, whereby buy-side and sell-side traders connected directly to one another to exchange pre-trade and trade information. While not as passive as some current peer-to-peer initiatives like LiquidNet, FIX nonetheless can be considered the forbearer

Exhibit 1
Peer-to-peer models are evolving over time and have widely differentiating characteristics



Source: TowerGroup

As different peer-to-peer models have emerged, differentiating factors have become easier to identify. Exhibit 1 shows the evolution of the peer-to-peer marketplace as defined by its different structures.

Napster is the most loosely defined and managed peer-to-peer network – anyone can download the software and use it from any machine and pass any type of file (to share a file, the user needs only to rename it with a .MP3 extension and it becomes transferable). There are no restrictions on who can participate or are there any rules of engagement.

With slightly more structure than the Napster model, Groove.net epitomizes the unstructured peer-to-peer offering. Built by the architect of groupware Lotus Notes, Groove.net provides the toolset and backend to build a peer-to-peer data sharing application but does not provide any actual applications out of the box. Similar to Lotus Notes, Groove.net is an infrastructure set of tools that require data structures and complementary applications to be built specifically to meet the business needs and workflows. With the assistance of a Groove developer/administrator, firms and industries can take advantage of peer-to-peer information sharing with far greater efficiency and ease than traditional client-server based groupware.

The peer-to-peer architecture most applicable to financial services is the structured peer-to-peer model. Because these models incorporate stronger security measures, private and identifiable parties, and data models and formats highly specific to the functions that they serve (i.e. trading), these structured peer-to-peer models have the highest likelihood of success in financial services, particularly where financial transactions are involved.

Background on Peer-to-peer Computing

In order to understand the potential application of peer-to-peer technology in financial services, it is helpful to understand how it revolutionized the music industry. Exhibit 3 illustrates the differences between the two major peer-to-peer models changing the music industry: Central Server File Sharing and Decentralized File Sharing.

While Napster has garnered most of the attention surrounding the peer-to-peer revolution, Gnutella is actually more of a true peer-to-peer technology because it has no central servers. However, this comes at a big price: no central index of available files to select from. Gnutella's lack of an index has served Napster well, as greater efficiency and larger communities are more easily built from a passive, user-driven index the way Napster's central server model dictates.

Thus, the peer-to-peer revolution occurring in the music industry can serve as a prognosticator for other industries, with some important exceptions. First, sharing music files is not as innocuous as transmitting financial transactions. Security must be tighter, communities more selective, and workflows more embedded. Second, the potential community for financial services is much smaller than that of the consumer-laden entertainment industry. P2P in the financial services industry will likely flourish more readily in the business-to-business sector, rather than the business-to-consumer sector, due in large part to the greater sophistication of institutional investors.

Exhibit 3
Music file sharing has brought P2P to the fore; it also serves to help define the technology

	Central Server File Sharing	Decentralized File Sharing
Example	Napster, Scour, Apple Soup	Gnutella, Freenet
Architecture	Central server with index	Fully decentralized with no index
Customer relationship	In-house	Fragmented
File Transfer method		http (looks like normal web traffic)
Bandwidth requirement	Flexible (although speed will vary)	High
Estimated Users	50 million +	Unknown

Source: TowerGroup

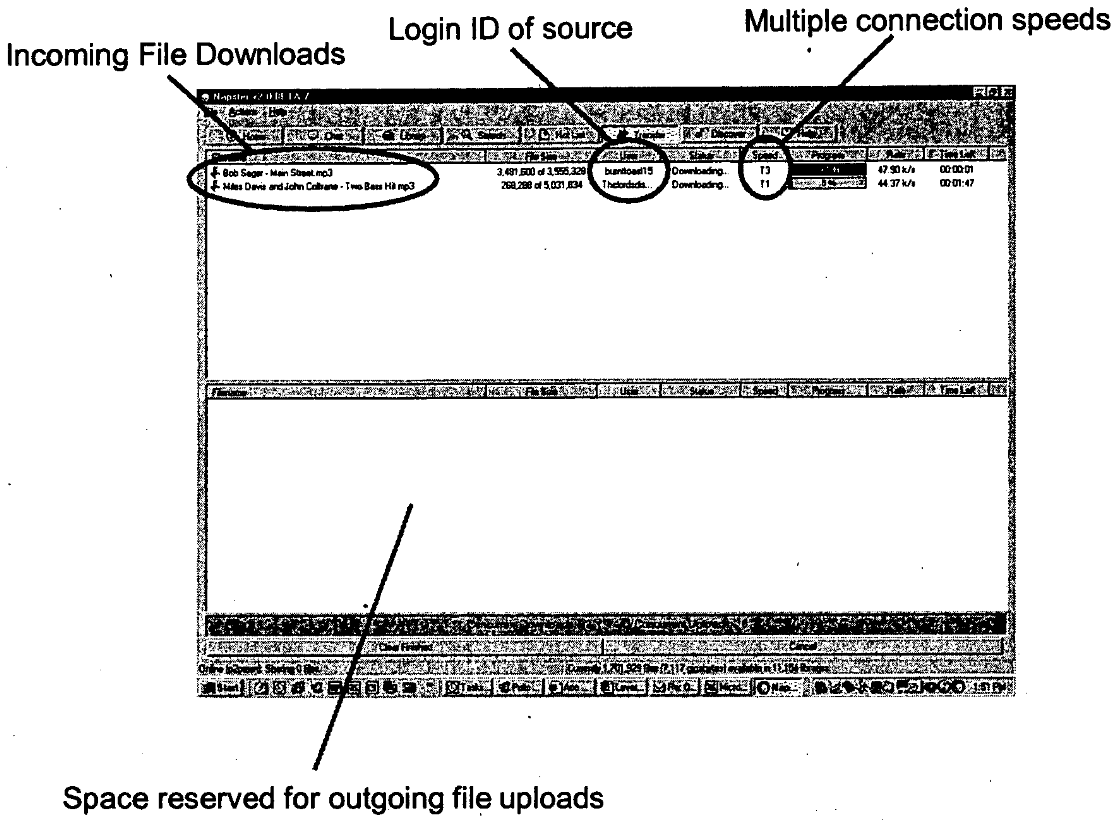
A Napster/Gnutella overview helps lay the foundation for understanding P2P.

As many people have learned from their teenage or pre-teen children, the opportunities presented by peer-to-peer computing first became blatantly apparent with the first download of an obscure, difficult to procure (and, as their children would say: "Oldies") song from the Internet using Napster software. The simplicity of clicking into www.napster.com, downloading the Napster software, searching for a specific song title, and downloading your first song demonstrated the power of connecting millions of desktop PCs with one another to form a data-sharing community of similar interests (i.e. music).

Formally launched only a year ago in November 1999, Napster brought the potential of peer-to-peer computing to the fore. While peer-to-peer computing has been in existence for years, Napster demonstrated two essential elements that catapulted peer-to-peer into the stratosphere: an easy-to-install and easy-to-use use application combined with a consumer-based product that created value (i.e. music file sharing). The consumer orientation exposed peer-to-peer to the masses while the technology demonstrated how easy it could be to passively connect one desktop computer to another.

What makes Napster so functional and popular is not so much the fact that it connects millions of PCs to one another, but that it maintains an enormous, highly dynamic, highly efficient index to retrieve precisely the information desired from an identified party with the greatest possible speed. This type of index is only possible in the central server model described above. In addition, Napster has developed a simple, yet easy to use interface shown in Exhibit 4.

Exhibit 4
Napster's user interface makes file sharing simple and efficient



Source: TowerGroup

By contrast, Napster's most formidable competitor (if you can call it that in a no-revenue business model) is Gnutella. Instead of maintaining a central server and index, Gnutella is more of a true peer-to-peer architecture – fully decentralized -- merely connecting any PC with an IP address and not requiring them to log in to a central server.

The primary benefit to the fully decentralized architecture is its resiliency – if one of the peer computers becomes unavailable, the entire service does not crash; only that peer is inaccessible. If someone was told to shut down Gnutella today, it could not be done, as there is no central site to shut down.

As with all successful new technologies, competitors have emerged with various features designed to offer better alternatives. One such alternative to Gnutella is Freenet, offering an *anonymous* music file sharing service that includes encryption and decryption (Gnutella displays the IP address of the computer you are connected to, so users are readily identifiable).

The biggest disadvantage for the decentralized model lies in its inefficient network management. Because each peer needs to communicate with every other designated peer, the result can be an

overwhelming flurry of network traffic, resulting in slower response time both for the P2P application as well as other applications on the peer computer.

While not typically labeled a peer-to-peer technology, Microsoft's .Net initiative contains many of the principles of peer-to-peer, such as software that runs on a PC that automatically searches the Internet when the user takes certain actions. For instance, if an Internet surfer types in a search term at a search engine website (e.g. AltaVista), .Net will then search other search engine sites for the same terms and suggest possible links. Likewise, if a .Net user shops for an item online at a particular website, the .Net software will look for better deals at other online stores.

In a similarly positioned move, Intel is betting heavily on P2P as the next big Internet-enabling technology. It has even established a venture capital arm to invest in emerging peer-to-peer technology firms, while guiding product development toward new chip sets designed specifically to help grow and service new peer-to-peer technologies. In the same cyclical way that peer-to-peer technology will feed demand for Internet bandwidth which will in turn increase demand for peer-to-peer technology, Intel sees faster chips being required for peer-to-peer applications, which will in turn feed demand for even faster chips. This type of circular demand creation has served Microsoft and Intel quite well for the past decade; perhaps peer-to-peer technologies will become the next demand-generating technology for the semiconductor industry.

LiquidNet Brings Peer-to-peer to Trading

Founded in January 2000 and with version 1.0 expected to launch by the end of 2000, LiquidNet is aiming to build the largest liquidity pool exclusively for buy-side traders. By combining order matching and negotiation software with direct interfaces to some leading order management systems, LiquidNet is poised to redefine buy-side trader workflow and potentially the market for block orders. LN Holdings, the parent company of LiquidNet, was founded by Seth Merrin, builder of the Merrin order management system and founder of middleware vendor VIE Systems. For more on the Merrin OMS and other order management systems, see TowerGroup research notes 20:23S, Buy Side Order Management Systems Vendors Proliferate, Adding New Functionality and Providing Greater Support and 24:09M, Buy-Side Order Management Systems Market: Trends and Vendor Update).

To understand the potential for success of LiquidNet, several compelling elements of LiquidNet are worth noting. First, the peer-to-peer model is one whose time has come for processing and communicating financial transactions. By setting up a model that allows for direct, desktop-to-desktop connectivity between parties, LiquidNet is addressing a key underlying gap in the equity trading market: how to match orders between traders without interrupting their workflow.

Exhibit 5
LiquidNet's Board of Directors and Advisory Board significantly increase its chance for success

LiquidNet Corporate Board of Directors	LiquidNet Product Advisory Board
Jim Brown, Founder TH Lee Putnam Internet Fund	AIM Management Group
Nathan Gantcher, Vice Chairman, CIBC World Markets (ret.)	Essex Investment Management
Michael Price, Chairman, Franklin Mutual Series Fund	PIMCO Equity Advisors
Louis Ricciardelli, President, B/D operations consulting firm	Putnam Investment Management
Lawrence Zicklin, Chairman, Neuberger Berman	SSB Citi Asset Management
	Scudder Kemper Investments
	T. Rowe Price

Source: LiquidNet

Second, LiquidNet has enlisted the support of some of the largest and most influential investment firms by placing them on the company's Board of Directors or on the LiquidNet Advisory Board. Exhibit 5 lists the active participants in LiquidNet's development and launch. Also, LiquidNet has received financial backing from the TH Lee Putnam Internet Fund. The combination of directors, advisors, and funding partners has created a powerful leveraging opportunity for LiquidNet, not to mention a very good shot at creating critical mass and liquidity on day one – a virtual requirement in the eyes of typically impatient buy-side traders.

Third, LiquidNet has pledged several guarantees which all require a degree of trust on the part of its clients in order to be successful. It has pledged total anonymity for all parties in LiquidNet, even to the point that its own staffers will not have access to the identity of sources of orders within LiquidNet. The security capabilities of LiquidNet are currently be examined by accounting firm Ernst and Young, with the goal of becoming "E&Y Cyber Certified". LiquidNet has also pledged that it will not overstep the reaches of its status as a broker/dealer to take advantage of what could become a significant source of order flow. Obviously, any breach of these pledges would spell doom for LiquidNet, hardly justifying any lapses in control and security.

By building one- or two-way interfaces directly from leading order management systems, LiquidNet has eliminated the task of re-keying orders into another system for possible execution (see Exhibit 6 for a list of the interfaces LiquidNet has built). The primary reasons only one-way interfaces have been built for certain OMS' is vendor reluctance and lack of vendor resources. If LiquidNet becomes popular among buy-side traders, TowerGroup expects all OMS vendors will eventually be forced by their clients to build a two-way interface.

Exhibit 6
LiquidNet has built interfaces to most of the leading Order Management Systems

LiquidNet/OMS Two-way interface*	LiquidNet/OMS One-way interface**
Advent Axys	Argenesis (formerly Tenfold) Landmark
EzeCastle Trader's Console	Charles River Development
MacGregor/Merrin MFTP	Sungard (formerly IDEE) Decalog

*Two-way interface allows orders to be extracted from the OMS and executions sent back to OMS

**One-way interface allow orders to be extracted from the OMS; executions are not sent back.

Source: LiquidNet, TowerGroup

In a future release – once its users have become comfortable with the basic capabilities of LiquidNet -- the system will capture and interpret usage statistics and trading patterns that will in turn be used to apply a ratings system to LiquidNet's participants. In other words, with each automated negotiation that takes place, LiquidNet will store the degree of success for that particular negotiation. These ratings can then be viewed, both as an overall rating for the participant as well as how successful (or unsuccessful) one participant has been with another. Because the system is calculating the ratings, there is no opportunity for participants to "game" the ratings.

LiquidNet has often been characterized as "picking up where Optimark left off." While both systems are attempts to provide automated trading for block orders, the similarities end there. LiquidNet is deploying a far simpler front-end GUI and application than Optimark; Optimark was for more complex than LiquidNet (and too complex for its potential user base). LiquidNet is also targeting only the buy-side, enlisting the input, interest, and trust of the originators of much of the Street's order flow. Lastly, LiquidNet has developed a system that interfaces directly to a firm's order management system, eliminating the need for extra keystrokes on the part of the buy-side trader, a characteristic whose importance cannot be overstated.

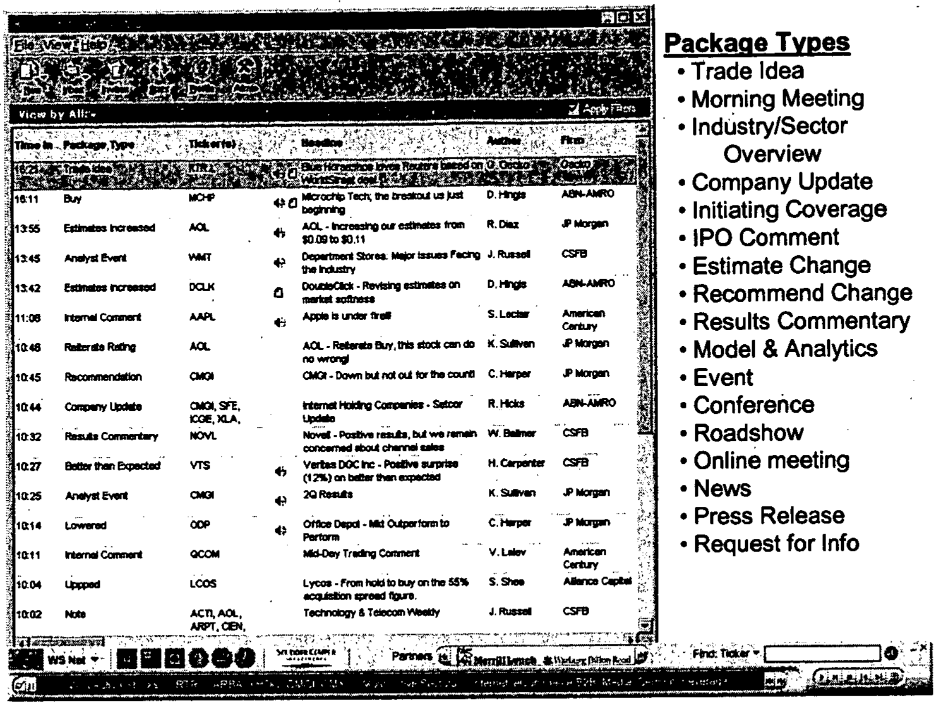
WorldStreet.net Looking to Revolutionize Investment Process

In another move to bring peer-to-peer technology to the investment management process, WorldStreet Corporation has launched WorldStreet.Net, a peer-to-peer-based software and network offering that allows financial institutions to share information on a targeted basis.

First founded in the early 1990's as a Customer Relationship Management (CRM) software firm, WorldStreet has since reinvented itself around content and information distribution, while maintaining a focus on CRM. By combining a new concept dubbed "package routing" with more traditional CRM capabilities, WorldStreet is taking a run at becoming the "control panel" for the buy-side, both on the portfolio manager and analyst desk as well as the trading desk.

As Exhibit 7 shows, one access point that WorldStreet provides is a web-interface tool to send and receive many different information packages, such as those listed in the exhibit.

Exhibit 7
WorldStreet.net provides filtered "packages" of information to its users



Package Types
- Trade Idea
- Morning Meeting
- Industry/Sector Overview
- Company Update
- Initiating Coverage
- IPO Comment
- Estimate Change
- Recommend Change
- Results Commentary
- Model & Analytics
- Event
- Conference
- Roadshow
- Online meeting
- News
- Press Release
- Request for Info

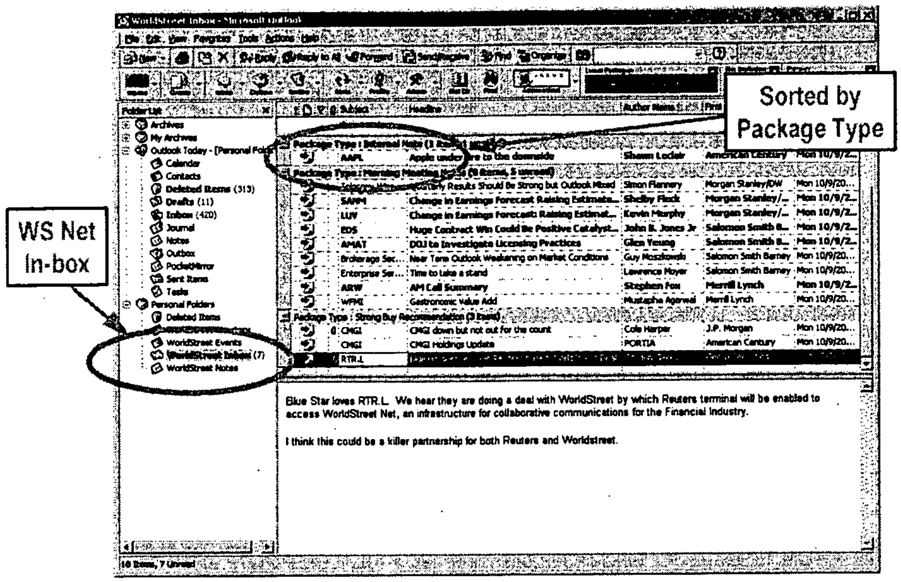
Source: WorldStreet

In addition to a web interface, WorldStreet also offers components that TowerGroup considers a requirement for successful peer-to-peer applications: integration with current workflow applications. In this case the workflow applications are Microsoft Outlook, Lotus Notes, Siebel, Reuters terminals and others. Exhibit 8 demonstrates how WorldStreet integrates with Microsoft Outlook.

By building WorldStreet.net around peer-to-peer technology, the company hopes to provide its clients with direct, filtered, secure communication between interested parties. By allowing customers to establish different levels of a relationship with one another though its online business card feature, buy-side firms can decide which brokers and/or counter parties they wish to do business with and what types of information they want to exchange.

When contemplated in the context of how the Internet has evolved, WorldStreet is attempting to establish a peer-to-peer network that defines how investment managers will communicate with their counterparts in the future. The peer-to-peer architecture allows software – as instructed by its users -- to determine what pieces of information are important and relevant to the task at hand: What sectors should I be looking at? Is there any new information about my portfolio I should consider? Are there any conference calls or analyst briefings for a particular stock that I should listen in on?

Exhibit 8
WorldStreet integrated with Microsoft Outlook



Source: WorldStreet

By placing automatic filters on the plethora of information deluging the buy-side portfolio manager, and linking the buy-side desk directly to the sell-side, WorldStreet is positioned to become the software of choice for investment managers overwhelmed with more information than they are able to consume. Supplying this capability for the participants outlined in Exhibit 9 will likely establish a solid foothold on the buy-side for WorldStreet

Exhibit 9
WorldStreet.net's "controlled launch participants" as of November 2000

BUY SIDE	SELL SIDE
American Century Investments	Deutsche Bank
Ardsley Partners	Dresdner Kleinwort Benson
Ark Asset Management	ING Barings Capital
Boston Partners	JP Morgan
Fiduciary Trust	Merrill Lynch
Glenmede Trust	UBS Warburg
Independence Investment Advisors	WR Hambrecht
Invesco	
Janus	
Scudder Kemper Investments	

Source: WorldStreet

Challenges Facing the P2P Revolution

While TowerGroup believes that the peer-to-peer revolution is in its nascent stages with a tremendous amount of promise and potential, it also has some challenges it must overcome to become truly mainstream.

First, one of the most significant concerns for firms using and deploying peer-to-peer technology surrounds security. As the capabilities of Napster so adequately demonstrate, p2p technology allows for more open communication between two previously unconnected desktop machines. While this openness presents no serious concern to the average music file-sharing consumer, it raises some significant red flags for the financial community. Perhaps more than any other data that travels over the Internet, financial transactions require the most secure environment. Even the perception that security may be compromised will slow down adoption of peer-to-peer computing. The firms like LiquidNet and WorldStreet are addressing this concern by placing security measures and user profiling within their systems. As the financial community becomes more comfortable with the benefits of peer-to-peer and the security that encompasses the structured models, investment managers and others will rapidly adopt the technology.

Secondly, buy-side firms may not be quick to adopt this new technology. In the same way that consumers – and the financial community -- were relatively slow to embrace financial transactions over the Internet, they will be equally resistant to permitting widespread access to information residing on their computers to the general (or even identified) public.

Third, this new technology has raised legal issues previously unthought of. While this legal onslaught – exemplified by the legal battles between music distributors and Napster -- will be a short term deterrent to the advancement of peer-to-peer computing, it will nonetheless curtail some of the mass movement to the peer-to-peer model, particularly for larger, more conservative companies.

Fourth, as with many new technological breakthroughs, peer-to-peer suffers from "broad definition" affliction: P2P is sometimes being used as a catchall for any communications protocol between two computers that rides on the Internet. As this technology evolves, the industry and the media will segment the peer-to-peer marketplace and begin to sift through which applications are truly peer-to-peer and which are trying to ride the peer-to-peer wave.

Lastly, the advance of peer-to-peer applications will result in a direct increase in bandwidth consumption: as evidenced by the shutting down of Napster access by colleges, the peer-to-peer models consume far more bandwidth than any other technology introduced thus far. As these bandwidth needs increase, questions arise as to whether the currently available networks providers have the capacity to handle a peer-to-peer world. While viewed as a potential hurdle by peer-to-peer advocates, it creates a tremendous opportunity for network providers.

What Will the Future Bring ?

As peer-to-peer technology takes hold in the investment management industry, many unanswered questions remain as to how it will affect the future business model.

In one scenario, TowerGroup envisions more rapid and wide-reaching initiatives within the investment business, culminating in the development of large, online "communities" which help drive, among other things, the direction of markets. As these communities develop, we expect to see debates arise about true and original ownership of data. Once information is plucked from a desktop computer in one firm, it becomes very difficult claim ownership for it. Without proper and adequate copyrighting and controls, peer-to-peer could greatly accelerate the battle for content ownership.

The existing peer-to-peer models – particularly in the music business – have demonstrated the value that can be created by opening access to data. While the shot term affect of Napster may have hurt revenues for traditional music products (e.g. CD's, records, cassettes), the free distribution of the material created greater demand for previously un-promoted music. What better way to create demand where there is none? It certainly is one way to increase a commodity's commercial value.

Interestingly, the legal battle over the ability to continue the operation of Napster only proved one thing: free and open distribution of information (in this case – music) can only be upheld against participants, not providers. In other words, Napster was merely providing the vehicle for distribution – those who used it for illegal purposes did it at their own behest. This legal ruling has significant precedent, taking a page form the ruling against the movie industry against Sony for BetaMax. The ruling stated that the BetaMax video recording system had *even a small amount* of non-infringing use, therefore the users – not the company -- were abusing the technology. TowerGroup expects the same vindicating rulings to be handed down to Napster – and the entire peer-to-peer community.

Another potential exploitation of p2 technology lies in its ability to take over where business-to-business (B2B) exchanges left off. While B2B exchanges have captured the attention of entrepreneurs in almost every commoditized industry, peer-to-peer models threaten to usurp these exchanges with its more open, community-owned model. By putting control of the information or product exchange in the hands of the consumers, the peer-to-peer model can eliminate the middleman – the builder and owner of the B2B exchange. However, many communities still favor the ability to know who they are doing business with to prevent shady deal making. For more information on the B2B exchanges, see TowerGroup research notes 22:35SW, "B2B Exchanges": Providing Opportunities for Financial Services Institutions

Lastly, the true power of successful peer-to-peer lies in the ability to build a solid index. Without an organized index to search on and direct users, the peer-to-peer model is little more effective than using a general Internet search engine. The paradox then becomes: How to create a peer-to-peer architecture without creating some sort of central server facility ? TowerGroup believes that, while the central server model is considered by some to not be a true peer-to-peer architecture, it is nonetheless the most effective and efficient. This central index capability allows the community of users to more quickly and easily search for, find, and link up with the appropriate parties. Without the central index, it becomes more difficult to find the party you intend to conduct business with.

Crossing Networks - Has their time come.

2,005 words
31 May 2002
Banking Technology
25
English

A renewed focus on the cost of trading has made crossing networks more appealing. But, as Nicola Gaunt discovers, there are still technical and cultural challenges to overcome before crossing networks play a permanent and ubiquitous role in all fund managers' trading strategies.

The cost of trading has never been as high on fund managers' agendas as it is now. The Myners Report highlighted the issue last year, and the bear market has kept it in the spotlight.

One of the greatest costs of trading can be market impact. There is evidence to suggest that, to avoid it, traders are carving up their orders in to smaller and smaller portions. A spokesman at the London Stock Exchange (LSE) says that, last year, some traders, particularly arbitraders, reduced their trade size to avoid market impact, although he says it is difficult to quantify the true extent of the practice.

Another way of by-passing market impact is to trade off-market, anonymously, on crossing networks. According to analysis by AT Kearney on behalf of buy-side-owned E-Crossnet, crossing trades can save up to 80 per cent on UK transactions and a similar amount on trades in other European markets.

There are two major electronic crossing mechanisms available to fund mangers in Europe: ITG Europe's Posit, and E-Crossnet, of which Barclays Global Capital and Merrill Lynch Mercury Asset Management are major shareholders.

There are other players in the market. State Street has an electronic crossing and market access system for its Global Link clients called Lattice, and Liquidnet, a US-based, peer-to-peer matching mechanism is set to launch in Europe in the second quarter of 2002.

Industry sources estimate that crossing networks in the UK have only captured around two per cent of overall trading volumes. This is a modest amount and many fund managers agree they could use them more. 'The trading side of the industry is neglecting responsibility to asset owners by not embracing alternative trading technologies,' says Gunner Burkhart, global head of trading at Deutsche Asset Management (DAM). 'Many firms just give away performance.'

If this is the case, what is preventing fund managers from using them?

'With crossing networks, the key is liquidity. Everything else is secondary. If they don't amass liquidity, they won't survive no matter how many bells and whistles they have,' says Rob Hegarty, senior analyst at TowerGroup.

Each crossing network has its own slightly different way of attracting liquidity. ITG Europe and State Street allow both fund managers and broker-dealers to take part, whereas E-Crossnet and Liquidnet limit participation to fund managers only. Whether or

not the latter's exclusive membership community is the best solution remains a moot point. E-Crossnet's chief executive, Nigel Foster, considers its buy-side model to be its 'golden concept'.

On the downside, only having buy-side participants reduces the inventory available. While TowerGroup's Hegarty agrees that the buy-side are very keen to trade with each other, he points out that to build liquidity, providers may be forced to open participation to the sell-side. 'Economic considerations may encourage E-Crossnet to open up to the sell side, but, equally, its ownership structure may legislate against it,' says Martin Ekers, head of equity dealing at Morley Fund Management.

Alasdair Haynes, chief executive of ITG Europe, certainly believes in open access. 'To be successful, crossing platforms need to attract the passive list players. Posit has done this and the reason is because the investment banks, the market makers, are on board and they bring liquidity,' he says. Nevertheless, more than 70 per cent of ITG Europe's revenues come from institutions and only 28 per cent comes from broker/dealers.'

With $775bn of assets under management and $6.2 trillion under custody, State Street does not have a problem with liquidity. Dan Wiener, managing director responsible for transition management at State Street, says that, generally, between 40 and 60 per cent of trades for transition management clients are crossed before going to market - either internally or via Lattice.

Lattice is a crossing system combined with a market access system. Users enter an order and the crossing engine looks for a match with other Lattice users. If it finds one, the trade automatically executes and is then reported to the underlying exchange. If there is no natural match then the order can be re-directed automatically to the relevant exchange for execution. Wiener says that the system offers great depth of functionality and control over execution price, trade size and timing. This has made it particularly popular among fund managers doing basket trades.

He says State Street is planning to extend Lattice's links to additional trading platforms at some point this year. 'We want to increase Lattice's connectivity to wherever clients wish to execute order flow,' says Wiener.

Liquidnet differs from all its counterparts in that traders do not have to enter orders themselves. Its software searches participants' order management systems (OMSs) and automatically alerts traders to natural matches. Leo Smith, head of equity trading at Putnam Investment Management, who has been using Liquidnet since its US launch in April 2001 and is on the firm's board of advisors, says: 'Liquidnet went out into the marketplace and found out exactly what people want. Traders are very busy, and if something is not easy to use, they won't bother.'

Despite the workflow and other advantages it offers, Liquidnet does have a significant obstacle to overcome, as fund managers cannot use it unless they have an OMS in place. Seth Merrin, Liquidnet founder and chief executive, says that up to 90 per cent of the large fund managers in the UK will have an OMS up and running by early 2002, hence its new presence in London.

That said, at the European Traders Forum in November 2001, a straw poll of some of the largest fund managers in Europe revealed that one quarter still did not have a system in place.

But even those that do have OMSs may still not be able to use crossing mechanisms to their full capability. According to Marcus Hooper, head of equity and derivative trading at Dresdner RCM Global Investors, not all of the OMSs on the market are sophisticated enough to streamline multiple order input and this is key for crossing networks such as E-Crossnet and Posit. 'To get the most out of crossing networks, orders have to be ready for every cross. Each one has to put into the black box,' he says. 'Even if traders use the Financial Information eXchange (FIX) protocol, each trade still has to be filtered.

You can imagine how many resources this requires, for example, five times a day. Beefing up our OMS is critical to what is going on. With an advanced OMS, theoretically, we can transact 100 per cent of our trades electronically.'

In contrast to E-Crossnet and Posit, Liquidnet gets behind the dealer and does the manual checking, says Hooper. 'In some ways it is a lower-tech solution but at an earlier stage in the trading cycle. It solves a different problem at a different stage,' he says.

While crossing mechanisms effectively came into being because, in some situations, there is too much transparency on the exchanges, the lack of pre-trade transparency is another drawback of crossing networks highlighted by DRCM's Hooper. 'One of the biggest problems in the future for the industry generally, and crossing networks specifically, is transparency. The London Stock Exchange's Sets is transparent, but the flip side is that no one wants to put in large orders,' he says. But at the other end of the spectrum, with E-Crossnet and Posit, says Hooper, traders have no idea what is in the system and no pre-trade price information.

Hooper is working with Liquidnet on the idea of developing new forms of pre-trade price transparency. 'We have opened a discussion on the concept of using probability and fuzzy logic to solve the pre-trade information problem. With any order, the variables are price and size; Sets tells you everything, and a crossing network tells you nothing. There is an important middle ground that no one has even considered yet.

'It would work on the premise that when you put an order in, it is a real-life order,' he says. 'If someone else has a suitable buy against your sell, you definitely have a deal. This obligation to trade would mean if you want to game the system you are at risk of making an expensive mistake.'

For others the technology or structure of the business is not at the heart of the matter. 'One of the real challenges for alternative platforms is to change the mentality of buy-side traders,' says DAM's Burkhart.

He cites the need for traders to educate themselves on non-traditional mechanisms in order to take more responsibility and control of their orders.

How brokers' research is paid for is another issue that needs to be resolved as, currently, brokers provide fund managers with research on the tacit understanding that business will be put their way. 'Crossing networks haven't taken over the world partly because of research payments. At present, if an investment firm moved all its business to Posit, research wouldn't get paid for,' says Hooper.

It appears that the onus is on brokers to unbundle their services. 'The role of the traditional broker within the executing arena must evolve. Part of the evolution should be a more transparent unbundling of services provided, so that both the broker and

institution can work together in assuring that the ultimate client, the asset owner, pays only for needed services,' says DAM's Burkhart.

In Hooper's view, payments for trading, research and sales will be disaggregated, although he also believes there are more efficient ways to achieve this than those suggested by last year's Myners Report.

State Street has already begun the process of unbundling broker services.

Lattice users trading US securities can trade over Lattice, but have the option to 'step out' or clear their trades through a broker of their choice. 'This allows our clients to benefit from the execution quality that they achieve through using Lattice, while still paying for the research which they need to make investment decisions. We are looking for ways of introducing this functionality to other markets,' says Wiener.

Overall, do fund managers believe the increase in trading venues has improved the quality of their trading? Morley's Ekers says that the firm's trading performance has been enhanced by the increased liquidity and reduced impact provided by crossing networks. He estimates that as much as 20 per cent of the firm's turnover in the main equity market already goes through Posit and E-Crossnet. He is also surprised that some fund management groups are still stubbornly avoiding using such networks, despite the obvious benefits.

DAM's Burkhart tells a similar story. 'With our own restructuring, we are starting to make real progress in realising the embedded alpha in trading.' At present, Burkhart says that less than ten per cent of the firm's business globally is transacted through alternative platforms. 'We will be increasing this in the immediate future,' he says.

Putnam's Smith says that transaction costs have fallen. While he was unwilling to give a percentage of the volumes of trades the firm puts through crossing networks, it is 'meaningful', he says. 'These non-traditional liquidity pools are gaining traction and this trend will continue.'

Nevertheless, the fragmentation of trading venues does have its drawbacks.

Smith bemoans that it's possible to trade IBM shares in 14 different places in the US. 'It's lunacy. In an ideal world, I would like a virtual club with all the different platforms electronically connected, with time-price priority,' he says. 'The markets will get there, but it will take years.'.

New Block-Trading System Combines Automation with the Human Touch
Wall Street and Technology - September 4, 2002

Harborside+, a hybrid-equity-trading system, is going after large block traders who desire anonymous matching and execution.

Targeting buy-side and sell-side firms that desire an anonymous mechanism for executing large block trades, Thomson Financial, Jefferies & Co. and a group of investors have teamed up to launch Harborside+ - a hybrid-trading system that matches indications of interest electronically but performs executions manually via a trading desk. Scheduled to officially launch in September, Harborside+ expects to compete with fully electronic matching systems, such as Liquidnet and Investment Technology Group's Posit.

Clients of Harborside+ enter indications of interest to buy or sell a stock - at a minimum of 25,000 shares - into the system's matching engine. After the system finds a match at the midpoint of the best bid and offer, a trader at Harborside+'s broker/dealer - Harborside Securities - then phones both the buyer and the seller to tell them a match has been found and to begin a negotiation process. "This really is a hybrid between technology and traditional phone-based trading," says Harborside+ Vice President David Leone. "Once we pre-qualify people with technology and establish a match, that's when we bring people back into the mix, to finish the trading process and help facilitate a negotiation."

Leone says Harborside+ is currently in a pilot mode at roughly 50 firms, with a 60 percent/40 percent split between buy-side and sell-side users, respectively. Those clients, he says, are performing average executions of 70,000 shares.

Leone says the "confidentiality" component of Harborside+ gives users the comfort level they need to enter larger-size orders. "The system is totally anonymous ... . If no matches are established over the course of the day, the IOIs (in the system) would expire and a trader can feel confident that his willingness to buy or sell a stock has not been seen by anybody," says Leone.

Munder Capital, a Birmingham, Mich.-based money-management firm with roughly $35 billion in assets under management, is one of the firms piloting Harborside+. Dennis Fox, director of equity trading at Munder Capital, says the firm's equity traders have been using Harborside+ for the past three months, with an average execution size of 75,000 shares.

Munder's traders use the system by entering IOIs into the Harborside+ matching engine. If a match is found, Fox says, the system alerts Munder electronically and a Harborside Securities trader contacts the firm over the telephone to begin a negotiation centered around the midpoint of the best bid and offer. "At a minimum, I can (then) trade at least 25,000 shares with the person on the other side," says Fox.

Harborside+, he says, is now Munder's "go-to place" for trading illiquid stocks. "That's

where I've had the most success with Harborside+," says Fox. "No one has any trouble trading a million shares of a very liquid name. It's when you've got an illiquid stock that you really need that person in between."

Fox says that he posts IOIs by sending either an e-mail or an instant message to the Harborside Securities trading desk. In contrast, he says, one of his colleagues uses a Web-based graphical-user interface to input IOIs into Harborside+.

Clients who want to enter IOIs electronically, says Leone, have a few different options. In addition to the Web-based GUI, a client can also input IOIs through a variety of order-management systems, including Macgregor, Eze Castle, Charles River Development and Decalog. If they don't like either of those options, firms can also enter IOIs via direct-FIX connections supplied by FlexTrade Systems, Triad and Tradeware.

Fast Facts

System Name: Harborside+
Projected Launch Date: September 2002.
Primary Owners: Thomson Financial, Jefferies & Co., Commonwealth Ventures, Mellon Ventures, Neo Carta Ventures.
Target Audience: Buy-side and sell-side firms seeking an anonymous block-trading mechanism.
Minimum IOI: 25,000 Shares
Electronic-Access Points: Web-based graphical-user interface, FIX connectivity and API that links to several order-management.

Buy-side Firms Tapping Liquidity Via OMS Interfaces with Harborside+
Press Release - December 16, 2002

NEW YORK--(BUSINESS WIRE)--Dec. 16, 2002--Harborside+ announced today that traders are gaining access to new sources of liquidity, by leveraging interfaces between its large block trading service and their respective order management systems (OMS). A neutral and confidential service for attracting and matching large block equity indications (IOIs), Harborside+ opens up the greatest available pool of liquidity by including traders from the buy- and sell-sides.

We have established numerous options for submitting IOIs, in an effort to create and build upon an expansive pool of liquidity for large block trading," said Harborside+ President and CEO, Robert C. Hall. IOIs may be sent to Harborside+ through a variety of channels including a firm's OMS, a Web-based GUI (developed by Harborside+), direct FIX connections, or by phone to the Harborside+ agency desk.

Harborside+ and Macgregor jointly developed an application (Harborside+ Indication Manager - HIM) that seamlessly allows Harborside+ to receive IOIs from a traders' OMS. "We went to great lengths to ensure the application's openness," said Harborside+ CTO, Seth Gelberg. "As a result, the application will work with any OMS, commercial or proprietary." HIM currently supports order management systems from Macgregor (MFTP and Predator), Charles River Development, Eze Castle Software, Linedata, SunGard Investment Management Systems and Thomson Financial, as well as three that are proprietary.

HIM extracts information from orders that are eligible for Harborside+ from a trader's blotter. The application then sends information on side and symbol to the Harborside+ central server as IOIs. Harborside+ and the OMS client (trader) are alerted once a match is discovered. "We're giving our clients the best available tools for opening new sources of liquidity, so they can obtain best execution and lower their implicit costs of trading," said Macgregor Executive Vice President/Networks and e-Markets, Stephen Alepa.

The connection between our OMS, Traders Console, and Harborside+ increases the electronic trading capabilities of our clients," said Eze Castle Software President, David Quinlan. David Brooks, head trader with The Boston Company Asset Management, would agree. "Any application that initiates the daily process and presents me with a few simple choices is a big help. Once I've selected the stocks I want to submit to Harborside+ (via Traders Console), I don't have to worry about updating or canceling indications; the application does that for me. Harborside+ allows me to search for the contra-side without the risk of over-executing."

Harborside+ offers a subtle advantage by including the sell-side, and accommodating special requirements such as soft dollar commissions and step-out trades," said Charles River Development Vice President, Sales & Marketing, Tom Driscoll. Numerous Charles River clients are using the interface to Harborside+, with more expected by the company. "We welcome Harborside+ as another venue for advancing electronic trading," said Mr.

Driscoll.

Pioneer Investment Management, a client of Charles River Development, is sending orders from its blotter to Harborside+. "Having Harborside+ run off our OMS makes the application easy to use," said Pioneer Investment Management Senior Vice President and Director of U.S. Trading, Robert Gauvain. "The interface works the way it's intended to and is a time-saver for us."

Linedata Services has also rolled out the Harborside+ interface to its LongView clients. "The Harborside+ buy-side interface approach is innovative, seamless to clients and easy to use which is important to traders," said Linedata Services Chief Operating Officer, Jack Wiener.

"We support the integration of our OMS, Decalog Trader, with a system-to-system electronic trading service such as Harborside+, because it offers a new, confidential source of liquidity for our clients," said SunGard Investment Management Systems Vice President, Eyal Yaron.

"Integrating Oneva Trade EQ with Harborside+ for unrestricted liquidity matching, is something our clients are excited about," said Thomson Financial Vice President Investment Operations, Christen Bremner.

Harborside+ melds the best of technology and human intervention, so that buyers and sellers can find each other and successfully complete a transaction quickly, efficiently and without market disruption. Traders submitting IOIs to Harborside+ only indicate side (buy or sell) and symbol. Unmatched IOIs are not seen by anyone, including the Harborside+ trading desk. Buyer, seller and Harborside+ trading desk are electronically alerted once the system finds a match, whereupon the service switches from technology to human expertise. The Harborside+ trading desk assists counterparties in finalizing the transaction, through phone-based communication that keeps identities of the buyer and seller confidential. Trades are executed by Harborside Securities, a totally independent registered broker/dealer. Harborside+ is not an ECN or an ATS.

A blended approach of technology and live support is deemed most effective for successfully trading large blocks, and especially in negotiating for larger sizes, accommodating conditional requirements and step-out trades. The technology underpinning Harborside+ is utilized as an enabler for pre-qualifying buyers and sellers of size: IOIs start at a 25,000-share minimum. For more information on Harborside+, visit www.harborsideplus.com.

Harborside+ Rolls Out Block Trading Platform

eFinancialNews - September 23, 2002

Harborside+, a US agency broker, hopes to capitalize on the investment community's growing fixation with trading costs with its new block trading platform. The US-based agency broker plans to roll out the service in its home market over the next few months before testing European waters next year.

Dave Leone, vice-president of Harborside+, says the platform is not an alternative trading system or electronic communication network but it is akin to a live neutral trading desk that enables buy- and sellsides to match and execute large blocks of shares anonymously. Indications of interest (IOI) are submitted and, only when the system indicates there is a match, are buyer, seller and Harborside+ alerted. The service then reverts to human intervention and orders are taken over the telephone. The identities of the trading counterparties are never disclosed nor are unmatched orders divulged.

He adds: "The original idea was to have a mechanism to allow buyers and sellers to move large positions in and out of their portfolios. However, we found that traders also preferred having the option of a live trading desk because of the complexities of trading large blocks of shares."

Harborside+, which may be used for block or portfolio trading, has set a minimum IOI size of 25,000 although Leone says the service in its pilot phase was averaging 70,000 shares per trade. The goal is to capture much larger order sizes. The technology is flexible and firms can submit IOIs to Harborside+ in various ways - through a firm's order management system, a web-based product or direct FIX connections.

About 100 users have signed on to Harborside+. About two thirds of the clients are from institutions with the rest from broker dealers. While it targets institutions around the world trading US equities, Harborside+ will explore possibilities abroad. Leone says: "Right now our focus is on the US, but once we have established the model, there is no reason why we should not take the same model overseas. We will be looking at Europe next year as traders are interested in the same thing - finding buyers and sellers as discreetly as possible."

He adds: "In some ways, you can call it back to the future. We are blending state-of-the art technology with traditional broking skills. The difference, though, is we do not call around the market place, looking for buyers and sellers. They have to come to us. Three quarters of a brokers' job is to pull off a trade without market impact and our system does just that. It locates the natural pool of liquidity without ever revealing the parties involved and completes a transaction quickly and efficiently."

Minimizing trading costs has become a hot topic this year as stock markets continue to behave erratically. Investors have always taken heed of the direct costs of trading such as commissions and taxes, but now their attention has turned sharply to market impact and opportunity costs, which account for the largest trading cost components.

US studies show that hidden costs could cause investors to lose up to $100bn (€103bn) a year. As Leone puts it: "The longer the time it takes to find the other side in a trade, the more information leakages could occur, which in turn will cause share prices to move. If I am an institutional trader, I am looking for the largest pools of liquidity where I can trade anonymously."

Julie Harris, a financial services partner with DiamondCluster, a US management consultant, says: "Best execution has taken on a new meaning. The magic is not the interpretation of the order but the execution. Highly liquid stocks lend themselves to be traded electronically but complex trades need human intervention. The new insight into transaction costs, coupled with the growing negative climate in the financial services industry, strengthens the need for broker-dealers and market centres to re-examine how they can best serve their clients."

So far, Leone counts only LiquidNet as a main competitor, although he points out that its rival does not target the sellside nor does it possess a trading desk in the middle. He adds: "They are trying to accomplish the same thing although we have different constituencies. For the moment though, I think there is room enough for the two of us given there are few players in the market."